# THE ART OF Swimming.

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OF

# Swimming.

Illustrated by Proper

# FIGURES.

WITH

## Advice for BATHING.

By Monsieur *THEVENOT.*

Done out of *French.*

TO WHICH

Is prefixed a Prefatory Discourse concerning Artificial Swimming, or keeping ones self above Water by several small Portable Engines, in cases of danger.

*LONDON*, Printed for *Dan. Brown* at the *Swan* without *Temple-Bar*; *D. Midwinter* and *T. Leigh* at the *Rose* and *Crown* and *Robert Knaplock* at the *Angel*, in St. *Pauls Church-Yard*, 1699.

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THE

# Tranſlator's PREFACE.

OUR Author endeavours to reduce Swimming to an Art, and lays down Rules how to attain it. Without doubt had this been done long ago, and the Theory of it conſider'd by Perſons capable of Improving it, both Natural and Artificial Swimming might have been advanced far beyond what they are at preſent; by natural Swimming, I mean Swimming

out ~~with~~ any other Instruments than what Nature has furnished us with; and by the other, I mean that with Artificial helps.

The Theory of it (as an Art) has never, that I know of, been throughly consider'd by any, altho' the advantages and conveniencies it brings along with it, sufficiently deserve it; and the Speculations it might yield, be no less delightful than those of several other Mechanical Arts, and of as much use.

To consider it in its most general extent, as the *Evection and sustentation of Bodies in Fluids*, and from its first Principles, would be necessary to make the Theory perfect; in order to which the following hints may be serviceable to furnish matter for further Enquiries. The

The first General Consideration in such a Theory ought to be the Specifick or Comparative weight of Bodies in the respective Fluids design'd to practise in. From thence may be obtain'd a perfect knowledge of the forces requir'd for sustentation and motion. When a Body is of equal weight with a fluid, bulk for bulk, it will swim immers'd in that fluid, its upper part even with the surface: If it be heavier than an equal bulk of the fluid, it will sink in it; if lighter, it would float on the surface, as much of it being under the fluid as would equal in quantity a bulk of that fluid of the same weight with the whole Body. Humane Bodies are almost of the same weight with water; the difference or weight of a Man wholly im-

mers'd in water, being not above six or eight Ounces, and less in saltwater than in fresh. Thus Quicksilver being above thirteen times as heavy as water, it would be impossible for a Man cast into a Vessel or Lake of that, to sink; on the contraty the Air being 800 times at least lighter than water, it would be very difficult for a Man to mount or fly in that, tho' perhaps not impossible. A Man being thus of near the like weight with water, Swimming becomes so very easie to him, insomuch that lying on his Back without motion, and holding in his breath, he cannot sink.

The next Enquiry might be, which of all those various motions he is capable of making with his Arms and Legs, are the most service-

serviceable to the different ways of Swimming. This is our Author's task in the following Treatise, wherein he shews several ways and methods of managing ones self upon all Emergencies. But to determine the business perfectly, Recourse ought to be had to Mechanicks, wherein the reasons of the whole are founded. The action of Swimming in Man, like a Boat with a pair of Oars, is nothing but a motion propagated by *Vectes*, * *Fulci-ments.* whose * *Fulcrum's* are movable; and consequently all the reasons of it reducible to that of the *Vectis*, and thence it is easie to find out and determine which motions are best and most expeditious upon all occasions whatsoever, and to de-

monſtrate the truth of them. The Conſideration of humane Bodies, of the management of their Arms, and Legs, from the ſame Principles, in other Arts and Exerciſes, ſhew evidently to us the reaſons of ſeveral ſtrange and ſurprizing actions, as in Wreſtling, Fencing, *&c.* and at the ſame time might give us inlets to further and unthought-of Improvements.

The next place among ſuch Enquiries might be alloted to Artificial Swimming. Beſides the common helps of Cork and Bladders, *&c.* that young beginners make uſe of to learn, there might be invented ſeveral ſmall Machines of different uſes for different purpoſes. How eaſie, and at the ſame time how uſeful might ſeveral Inſtruments be found out, that were

very

very little and easily portable, by which one might pass any River, or escape any danger of the water. Girdles of several sorts (whereof I hear of one lately invented, and very useful) might be made for such cases, of any Materials that are flexible and impervious to the water, such as oyl'd Cloths, and several sorts of Leather. A Cylindrical Case made of oyl'd Cloth, and kept open on the inside by Iron-rings fastned in it at a moderate distance from one another, so that clapping them together it might go into ones Pocket, might be so contrived as to tye round ones Wast, and fastned to keep the water out, and that alone would save from being drowned.

Several little Machines might be found very diverting in Swimming;

ming, to promote Expedition, and make the motions of one single Man in the water swifter than any Boat; Contrivances of thin small Planes of Wood with Valves, or otherwise small Hinges, fastned to the Legs or Feet might be very serviceable to that end, and perform the part of Fishes fins.

The Art of Diving is one of the most noble and useful parts of Swimming, and would deserve a particular Consideration in such a Theory. As to the Artificial or Machine part of it, it depends on other Principles besides Mechanicks. Considerations of the pressure of the Air proportional to the depth, and several other things besides the Construction of the Engines, must be enquired into, which would be too long to Discourse of here. In

In fine, Enquiries of this nature would prove very delightful to any one capable of them; and without doubt Improvements might be made equal to expectation, since there are certain and infallible Grounds to proceed on, and perhaps something or other might happen that would abundantly recompence the time and pains of the Enquirer.

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THE

# THE PREFACE.

*THE Merit or Advantage of any Treatiſe is not always to be decided by the Title. That of this preſent Tract has nothing extraordinary to recommend it; it ſeems only to be calculated for people of mean condition, ſuch as Watermen, Sailors, to whom their Employment has made the Arts of Swimming and Diving in ſome meaſure neceſſary, as alſo for ſome others who make uſe of it for diverſion.*

*But to take a ſtricter and more immediate view of the matter: It muſt be acknowledged that the Art of Swimming may be of no ſmall Importance to the greateſt Perſonages and moſt elevated conditions of life. It ſeems to have an alliance*

*alliance to the Art of Navigation, which is one of the boldeſt efforts of Mankind; For though the knowledge of the Winds and Compaſs ſeem to guard us from the dangers of Shipwrack; yet notwithſtanding the Arts of the moſt skilful Pilots, all Ages have too ſadly experienced the hazards of venturing on the Main, and that there needs recourſe to other helps to avoid thoſe Perils which Navigators are perpetually expoſed to.*

*There is none more preſent to immediate danger than the Art of Swimming: It would be ſuperfluous to inſiſt on thoſe numerous reaſons which might be brought to prove this truth, its ſelf-evidence is more than a Demonſtration. Nor is this Art leſs neceſſary even for thoſe of all Conditions, even though they never venture to Sea. A Perſon ſo far from daring to undertake a Voyage at Sea, that he never durſt venture into a Pair of Oars, may (in ſeveral places) be ſuddenly drowned in his own houſe, even then, when he is leaſt apprehenſive of it; He never*

*ver foreſaw the approaching deluge, and if he could have ſwam, might have avoided the fatal conſequence of it. That Traveller who had ſo happily made the Tour of the World, on his return home was drowned in a ſmall River by a ſudden miſchance of his Boat running againſt a Bridge, becauſe he could Swim no farther than to the bottom.*

*But to ſhew farther the advantage of this Art, it may not be amiſs to take notice of what conſequence it may be in War, and how ſerviceable it may chance to prove to Generals themſelves in the moſt preſſing occaſions. Cæſar has left us a very remarkable Example, when finding himſelf on the point of yielding to the Attempt of* Ptolomy *the* Egyptian *King, who had treacherouſly attackt him in* Alexandria, *He caſt himſelf armed into the Sea, and by Swimming recover'd his Fleet, with which returning to reward the Treachery,* Ptolomy *was ſlain, and* Cleopatra *declared Queen of* Egypt. *This ſingle Event is ſufficient to ſhew of*

*what*

*what use the Art of Swimming may be, down from a General to a Common Soldier. It is no ways dishonourable to yield to force, when it would be rashness to endeavour to defend ones self; and he that can safely retreat from an imminent danger, where otherwise he would have been necessitated to have fallen a Victim to his Enemies, may be in a condition to return sufficiently provided to revenge himself.*

*In fine, the Art of Swimming was in great esteem among the Ancients. The* Romans *solemniz'd it among their publick Exercises; nay, they incorporated a particular Society of Divers, which they called,* Urinatores. *And* Gruterus *gives us this Inscription of it:*

Patrono Corporis Piscatorum & Urinatorum.

*And there yet remain these Old Characters on one of the Gates of* Rome:

FL. ANNÆO LEMONI FORTUNATO PISCAT. URINATORI Q. Q. III.

*Every Man of VVar had its particular Diver, whose Charge was to take care of the Anchors and Cables, the same with that of our Boatswains.*

Pliny *tells us in the Second Book of his* Natural History, *that they had a method of using Oyl under water for a freedom of respiration, and managing of it so as to make it serviceable also for lighting them there.*

*According to the Testimony of* Elianus, *in the Fifth Book of his History, they were used to blacken the soals of their Feet, and the Palms of their Hands to avoid the Fishes, to whom the glistening of those parts in the water give notice. In Diving they went down with the head foremost, and turned themselves under water, holding their breath, because thereby the Body becomes lighter.*

*Some*

*Some would Swim thus the length of Eighty Furlongs together without being perceptible to any one: which is very considerable, and somewhat difficult to believe, each Furlong being* 125 *Geometrical Paces, or* 625 *Feet, so that the* 80 *Furlongs of* Greece *were* 10½ *Miles* English *measure; this surprizing force and activity of those Divers seems to be a little fabulous.*

*They had for their share the third part of whatever they brought up from the bottom, when the depth was not above eight Feet; and one half, when it was fifteen Foot deep.*

*Their assistance was also very considerable in Naval Fights, wherein they cut the Cables under water of their Adversaries Ships.* Dion Cassius *reports in the Life of the Emperor* Severus, *that the* Byzantines, *at present the* Constantinopolitans, *having been Besieged during three Years, by almost all the force of* Greece, *after having in vain essay'd several*

*ral Stratagems, at length resolved to attack their Adversaries Fleet with their Divers, who cut all their Cables under water, and having fastned them to some Cables of their own Ships, carried off those of the Enemy without their Men, which obliged the* Grecians *to raise the Siege.*

*These Divers were not less necessary in close Engagements, and in Boarding one anothers Ships; they would lay hold on their Adversaries, and together along with them fling themselves over-board, and so drown them.* Manilius *the Poet in his Fifth Book of* Astronomy, *speaks of a certain* Phocian *very Excellent in those sorts of Engagements.*

*Both the* Grecian *and* Roman *Histories are full of Narratives of the Undertakings of these sort of Divers. But to come to our times, it is most certain that the* Indians, *and the Negroes excel all others in these Arts of Swimming and Diving. 'Tis to them the Ladies are obliged for their Ornaments of Pearl, they are the Divers who*

*who fish for them; they are also very useful for recovering Anchors and Merchandizes that have been cast away.*

*The* Chinese *are not much inferiour to them in this sort of Exercise, they extremely apply themselves to it; they have whole Floating Towns, which they build upon Reeds, and the Houses joined together, and likewise Streets and all other Appurtenances of Towns on Land.*

*I might further enlarge on this Subject, but the brevity I design in this Treatise, will not admit of a long Preface; I shall conclude with telling the Reader, That this is the first Treatise of this kind that has ever appeared in the* French *Tongue, nor do I know of but two that have in any other, the one of* Everard Digby *an* English *Man, whereof I have here made some use; the other of one* Nicholas Winman *a* Dutch *Man. I wish what I write hereon may be acceptable to those who are curious on this Subject; and that is the sole End any honest Author*

*Author ought to propose to himself in what he does, which, whatever it be, deserves no further applause from the Publick, than it is found either useful or diverting.*

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OF

OF THE

# ART

OF

# Swimming.

*That there is such an Art, as that of Swimming, and what is to be observed before one enters on putting the Precepts of it in Practice.*

WHILE one reflects on those many and frequent Accidents, which thro' want of Swimming daily happen amongst us; Every one is ready to complain of the unhappiness of

Man in that reſpect, in compariſon of other Animals, to whom Nature has indulg'd that faculty, which he ought to enjoy in a more excellent degree, ſince it is ſo neceſſary to his Preſervation. But if we thoroughly conſider the buſineſs, we ſhall find nothing more unreaſonable than that complaint, ſince without doubt Man would not only Swim naturally like other Creatures, but alſo in more Perfection, and with more Variety, both for Pleaſure and Advantage; Otherwiſe there would not ſo many acquit themſelves that ways with ſuch an admirable dexterity and addreſs, as we daily ſee, which ſufficiently demonſtrates that Man has naturally all thoſe Diſpoſitions which are requiſite and neceſſary for it.

But it may be objected, If Man has naturally all the requiſite Diſpoſitions for Swimming, how comes it to paſs that all Men do not Swim alike? To this its eaſy to anſwer, (which is beyond all doubt true) that they would Swim all alike without any diſtinction, and all equally ſhare that happineſs which is

as

as natural to them as to other Creatures, were they not render'd uncapable by those internal Motions, which they don't sufficiently make themselves Masters of as they ought; such are those Motions of Fear, of Impatience, of Precipitation, &c. which make them unfit to make use of those Perfections which they possess. For testimony of this truth, we find that those in all Ages whom their Courage has exempted from these natural Remora's, have Swam from their very first Attempts, and performed extraordinary and surprizing Actions, which is not uncommon now-a-days among those who imitate them. Of the Agility of the one and the other sort, at length an Art is form'd, reducible to certain Rules, such as you'll find in this little Tract, and which being put in practice by frequent Use and Experience, one may attain to the habit of Swimming perfectly.

This Art, which may be number'd among the Mechanick ones, since it is performed by Motion, and the Agita-

tion of the Hands and Feet, has been hitherto exercised rather by a rude Imitation, than the Observation of any Rules or Precepts, by reason no one has taken the pains to reduce it to any; although it has always sufficiently deserved it, by the great advantages it brings to those who possess it, and in general to all Civil Societies, the consideration whereof ought to have made Men study to render it more easy to be learned, and more familiar to all Men, since they may have so great occasion for it. For we ought not to look upon it as People commonly do, (*viz.*) as barely to Swim, turn about in the Water, dive, &c. to create admiration in the Spectators of the Swimmers activity. Its end is far more noble, and the consquences of it so very considerable, that none ought to be ignorant of it, especially since Life it self is concerned in it, and the Preservation of it, from those Dangers to which those are liable who cannot Swim.

To mention some few Advantages of Swimming. In Case of Shipwrack, if one

one is not very far from the Shore, the Art of Swimming may ſet one ſafe there, and ſo ſave from being drowned. In caſe of being purſu'd by an Enemy, and meeting a River in ones way, you have the advantage of eſcaping two ſorts of Death, by gaining the Shore on the other ſide, and ſo eſcaping from your Enemy, and from being drowned in the attempt of doing it.

But a good Swimmer may not only preſerve his own Life, but ſeveral others alſo. An open Veſſel on the main Sea, in a Storm may be kept from ſinking by a good Diver: Or having loſt her Anchors and Cables, and being ready to be caſt on the Shore, may by him be haled thither, and avoid being daſhed againſt the Rocks, and ſo the Lives of all in it ſaved; and the occaſions of being thus helpful are only too frequent, as thoſe who are uſed to the Sea very well know. By the ſame means one may attack an Enemy poſted on the adverſe ſides of Rivers, and thereby ſometimes gain a Victory. And thoſe places which are environed

by Water are no more in safety when assaulted by such Besiegers.

It is from these Considerations which we have here mentioned, That the Art of Swimming ought to be esteemed, rather than from the Pleasure and Diversion which is commonly proposed by it; insomuch, that besides the Interest which particular Persons may gain by learning it, and perfecting themselves in it; it seems worth the while to erect Publick Academies, and establish Experienced Masters in them to teach it, since the advantages of it may be so considerable. It will be found more easy to learn than it has ever been heretofore, by observing the Precepts here laid down, by which those Difficulties may be avoided which use to deter young Beginners.

It may be objected, That of a vast number of Persons who are expert in Swimming, there is not one acquainted with these Rules, and so the same Difficulties remain as before. We'll agree to the truth of this Objection; but among these Persons there may be several,

ſeveral, who are not only capable of throughly underſtanding theſe Rules as ſoon as they read them, and applying them to what they had before learned by Chance, or Imitation of others; but alſo to improve them, by adding to them what they may have found out by their own Experience, and ſo digeſting and teaching the whole in an eaſy and methodical Order. Such Perſons ought to be ſought for and encouraged by Rewards, and we are perſwaded that if there was any ſuch one Expert and Dextrous that would publickly profeſs to teach it, he need want no Scholars nor Encouragement.

There is no Seaſon wherein a Man may not have occaſion to practice the Art of Swimming; but any Seaſon is not proper to learn it in. That time of the Year is (without doubt) the beſt, wherein People follow the Baths, or Swimming for their Diverſion, or to retain the Habit of it; that is, in the Months of *May*, *June*, *July*, and *Auguſt*, eſpecially in our Climate, where the Water is often prejudicial to the

Health at other times. There are alſo ſome Anomalous Years wherein it is not healthful to go into the Water at all times in thoſe four Months, as when the Weather is colder than ordinary for the Seaſon, and conſequently the Water. He that learns to Swim, ought to have his Animal Spirits at perfect liberty and command, which cannot be when the more than ordinary coldneſs of the Water forces one even to Shake and Tremble. It would be ſuperfluous to add, That one ought not to go into the Water when it Rains, for beſides the Rain (if it laſts any time) chilling the Water, it hinders from Swimming freely, and endangers catching Colds by wetting ones Cloaths.

The Night is alſo improper for this Exerciſe; and Weeds that may entangle the Feet, are alſo Obſtacles among the reſt, that ought to deter any prudent Perſon from venturing among them, eſpecially conſidering that altho' you have Company with you, yet you may be loſt beyond any poſſibility of help.

You

You ought likewiſe to take care that the Shore (or Bank of the River) where you ſtrip, be not Dirty, or Muddy, that you may not dirt or foul your Feet at going out: You ought alſo to take heed where the Graſs or Weeds be high, for fear of Snakes, or Toads, or other Venomous Animals, but that it be a plain even Turf, neat and clean, that you may keep your Feet ſo in returning to your Cloaths.

Before you go into the Water, you ought to ſee that it be clear, that there be no Scum or Froth on the Surface, what ſort of Bottom it has, that there be no Weeds or Mud, for ones Feet may be entangled among the Weeds, or one may ſink into the Mud, and the Water coming over ones Head, remain there, and be drowned. This may happen to the beſt Swimmers, by reaſon that by how much the more they endeavour to diſengage themſelves, they are ſo much the more liable to ſink. The Bottom ought to be of Gravel, or ſmooth Stones, ſo that you may ſtand thereon as firmly as on the Earth,

and be neither in danger of sinking in Mud, nor wounding the Feet. Care ought also be taken that it be even, and without holes; and above all, that you know the depth, especially when you begin to learn; for as it is then easy to tire ones self in strugling and making the first Efforts, so you must be sure that the Bottom is not out of your depth, when you have occasion to rest and take breath. It is impossible to be too cautious when you are alone, and have no one in Company that knows the place already; or if you have not seen others Swim there in the same Circumstances without danger. Moreover, it will not be amiss to observe, That when you have found out a place fit to learn in, that you don't venture any where else till you are a perfect Master of your Art, and till then it will be the best way not to exercise without a Master, or some one who is very expert in Swimming.

Something yet remains to be observed before you enter into the Water, in regard to Stripping your self. If you Sweat

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Sweat when you come to the place you have choſen; or if you have Sweat ſome time before you came, and are not quite cool'd, you ought to ſtrip by degrees, and that in walking to and fro on the Shore, ſo that you may recover a good Temperature, and by thus gradually Stripping, the Pores have leiſure to cloſe, and the Body become in good Condition to be expoſed to the Air without any detriment to the Health. After which you may enter into the Water, and Swim according to the following Precepts.

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I
Fig. 1.
P. 14.

I Fig. 2. P. 14.

OF THE

# ART OF Swimming.

## I.

### *Of the manner of entring into the Water.*

THOSE who don't know how to Swim, ought to enter by degrees, and gently, into the Water; but thoſe who are expert oftentimes leap in all at once with their Feet perpendicular to the Bottom, as is repreſented

preſented in the firſt Figure: ſometimes after having walked a little way in the Water, they lie along ſtretching out the Body and Arms, as you may ſee in the ſecond Figure. Others holding their Right Hand, or both Hands behind their Neck, from the Bank caſt themſelves in Head foremoſt, ſtriking the Water with the Calves of their Legs one after the other, as in Figure 3.

There are ſome who after a ſhort Race fling themſelves into the Water on their Right or Left Side, as in Figure 4. Others taking ſeveral Leaps towards the Bank of the River, at laſt Leap in with their Feet foremoſt, Body upright, meeting the Water firſt with their Buttocks and Calves of their Legs, as in Figure 5. This way is very ſafe, and the beſt of all.

All theſe ways of entring into the Water ſeem to be very well and pleaſant; nor can I find any thing inconvenient in them, except it be, that thoſe who make uſe of them run the hazard of taking in Water at the Noſe and Ears as they go down into it; but that may

I Fig. 4. P. 14.

I Fig. 5. P. 14.

may be avoided by holding in the Breath. It ſometimes happens that thoſe who are leſs expert, go down quite to the Bottom, which is inconvenient, by reaſon of ſometimes ſtriking againſt it, and that in a great depth you are obliged to hold your Breath a great while. But you may remedy that by turning on your Back as ſoon as you begin to approach to the Bottom; for you will ceaſe deſcending as ſoon as you begin to turn your ſelf. The coldneſs of the Water is ſomewhat troubleſome and painful at firſt, but in a little time you'll find uſe will take that off.

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## II.

### *To begin to learn to Swim.*

AFTER he who is to teach you to Swim, ſhall have fathom'd the Depth of the Water, or you your ſelf have found it by means of ſome Staff or Plummet, to put your ſelf in a right Poſture

Posture for Swimming, lie down gently on your Belly, keep your Head and Neck upright, your Breast advancing forward, your Back bending, withdraw your Legs from the Bottom, and immediately stretch them out again; strike out your Arms forwards, and spread them open, then draw them in again towards your Breast; strike forwards, making use first of your Feet, then of your Hands; as many Strokes as you can, you'll find this way easy and pleasant. I have been used to perswade those whom I have taught to Swim, not at all to fear lying along on the Water when they know the Bottom. It will sometimes happen that you'll be forced to drink down a great deal of Water, and put your self to a great deal of Trouble and Pains without much advancing in the Art; but that ought not to discourage you, nor need you fancy to your self that you are not as capable of Learning and Swimming well, as others, for the same things happen almost to all Beginners; for it is common at first Learning in lying along

Fig. 7

along on the Water to ſink down, and be ready to be ſtifled in holding ones Breath. It is uſual at firſt for theſe Reaſons to adminiſter ſundry Helps; as, to hold up their Chins, or give them a Bundle of Cork, or Bladders, or Reeds, which are the beſt helps for Beginners.

Take ſpecial Care that the Water be not higher than your Breaſt, nor ſhallower than up to your Belly. Figure 6.

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## III.

### *How to return back again in Swimming.*

TO turn back, you muſt turn the Palm of your Right Hand outwards from you, and ſtrike out the Arm the ſame way, and do exactly the contrary with your Left-hand and Arm, ſtriking that inwards the contrary way, embracing as it were the Water on that ſide. Thus you may turn your ſelf alſo

alſo on the Left Side, after having inclined your Head, Neck, and the Length of your Body to that ſide. The 7th Figure will make you more eaſily comprehend the manner of it.

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## IV.

### *To Swim with the Head erect towards Heaven.*

THIS way ſeems difficult, though it imitates that Poſture they ſay is natural to Man, to look upwards; and if we knew how to make uſe of it, there would not be ſo many drowned as there daily are; for that happens, becauſe inſtead of looking upwards, they look downward with their Heads towards the Bottom, and embrace the Water, as it were with their Arms, inſomuch that one might ſay they did all they could on purpoſe to drown themſelves. If they would place themſelves on their Backs, and keep their Bodies extended,

Fig. 8

extended, they might eaſily eſcape, nay could not ſink themſelves in that Poſture if they would; this we find atteſted by experience; and I never yet met with any Diver that could poſſibly deſcend in that Poſture, that is, with the Head erect towards Heaven; and if they had a mind to it, they found themſelves firſt obliged to elevate their Arms upright to contract their Thorax or Breaſt, and when all this is done, find it very difficult to ſink, though very ſlowly, and always come to the Bottom with their Feet firſt. But to learn to Swim on your Back, obſerve what follows.

When you are upright in the Water, lie down on your Back very gently, elevate your Breaſt above the Surface of the Water, and in the mean while keep your Body always extended in the ſame right Line, your Hands lying on your Belly, ſtriking out and drawing in your Legs ſucceſſively, and keeping them within two Foot of the Surface of the Water, and govern your ſelf according to Figure 8. It is true, there will

will always be great part of the Head under Water, which makes moſt tender Pates not much care for this way. Notwithſtanding which, it is the moſt eaſy and ſafe of any way of Swimming, and that wherein one may continue longeſt, for it leaſt tires, and one is not forced to Drink ſo much Water this way, as when Swimming on the Belly; beſides one more eaſily cuts through the Waves this way, and runs not ſo great a riſque of being entangled among Weeds as on the Belly. At the beginning it will appear difficult, and one can ſcarce forbear uſing his Hands. The beſt way to begin will be by the aſſiſtance of ſome other Hand, or a Bundle of Corks, or Bladders; you have nothing to do but to lye down gently, and take eſpecial care that you don't through fear put down one of your Legs to feel for the Bottom, for you need not fear ſinking, and that motion of the Foot is the way to make you do ſo. You muſt alſo take care not to lift your Knees too high, nor ſink your Hips and Sides too low, but

but keep your Body extended in the ſame ſtraight Line as I have already ſhewn. If you have a mind to turn anyways, and you are not yet very expert, you muſt turn in Swimming, and taking a Round or Circle; or alſo while the one Leg lyes ſtill, embrace the water next beſide you with the other; thus you will find your ſelf to turn on that ſide on which your Leg by its motion embraces the water, and you may turn either to the right or left, according as you make uſe of the right or left Leg for that purpoſe. Swimmers ought to be acquainted with ſeveral ways of turning themſelves backwards, or to one ſide, as occaſion ſhall require, to avoid meeting Boats, or Weeds, or Rocks, or Shores, and a thouſand other accidents. There are ſeveral ways of doing it, I deſign here to ſhew them all; and firſt that way which is called the *Eaſie Turn.*

V.

## V.

### *How to turn in the Water.*

TO turn eaſily you muſt incline your Head and Body to the ſide you would turn to, and at the ſame time move and turn your Legs after the ſame manner, as you would do to turn the ſame way on Land, this hinders and ſtops the motion of your Body forwards, all at once. *Fig.* 9.

If you would turn to the left, you muſt turn the thumb of your right hand towards the bottom, and with the Palm open, but ſomewhat bent, drive off the water 'foreright from that ſide, and at the ſame time with the left hand open, and fingers cloſe drive the water on that ſide backwards, and at once turn your Body and Face to the left. If you would turn to the right, you muſt do juſt the ſame things contrariwiſe. If any one ask of what advantage this turn may be?

Fig 10

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be? its uſe is very great in retiring from dangers that may happen. As ſuppoſe you met any floating Timber, or any thing elſe that you were obliged to avoid. It is alſo uſeful for helping others that are in danger. But you muſt take eſpecial care, that in turning after this way, your Legs are not open, and that you have water enough, for fear of hurting your Back-parts againſt the ground.

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## V.

### *The Turn called Ringing the Bells.*

THIS way of Turning is at leaſt of as great uſe as the precedent. You have no need of much room for it, and may do it either Swimming on the Back or Belly, and you go contrary in the one to what you do in the other. If you ſwim on your Belly, you muſt at once draw in your Feet, and

and ſtrike them out forwards, as you did before backwards, at the ſame time ſtriking out your hands backwards, and putting your Body in an upright poſture. *Fig.* 10.

If you ſwim on your Back, you muſt at once draw in your Legs towards your Buttocks, and ſtriking them down towards the bottom, caſt your Body forwards till you are turned on your Belly, but you muſt take heed that you have water ſufficient, and that there are no Weeds at bottom, which have ſometimes proved fatal to the beſt Swimmers.

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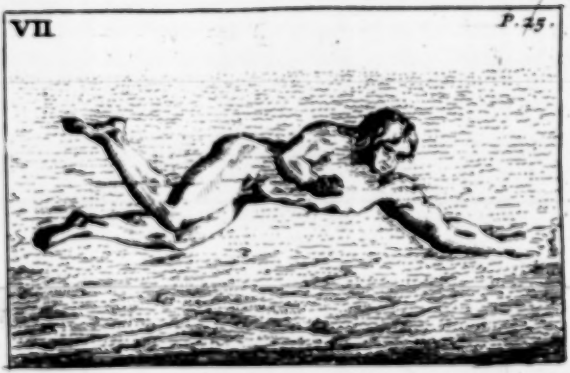
## VII.

### *Another way of Turning or Rowling round.*

THERE is another way of turning from the right to the left, and contrariwiſe, as a Globe does about its Axis.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Axis. If you ſwim on your Belly, and would turn to the left, you muſt extend your right hand and arm as far out before you as you can, and turn your Face, Breaſt, and whole Body to the left, lifting up your right hand towards the top of the water, and you'l find your ſelf on your Back, and from your Back you may turn again on your Belly, and ſo as often as you pleaſe. And to the end thoſe Changes of Poſtures may be performed with ſpeed and agility, you muſt take care to keep your Legs cloſe together, and your Arms muſt be ſtretched out right before your Breaſt, but not ſeparated far one from another. The Figure and practical part of this way of Exerciſing will make you more eaſily comprehend the buſineſs than any Rules in words can.

## VIII.

### *To Swim on the Back.*

ALthough there is not much occaſion for any great motion of the hands for thoſe that ſwim on their Backs; yet if you deſign to make any great advances forward, you muſt uſe both your Feet and Hands too. This way is chiefly uſeful for Swimming againſt waves, and carries ſwifter than Swimming on the Belly. The Thirteenth Figure will make you comprehend this method better than any Leſſons we can give you in words.

## IX.

### *To Swim Backwards.*

WE go backwards, when lying on the Back we puſh our ſelves onward with our Feet and Legs; but to do

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do the contrary, and advance forward, we muſt, lying always on the Back, keep the Body extended at full length in a ſtraight line, the Breaſt inflated, ſo that that part of the Back which is between the Shoulders muſt be concave (or hollow) and ſunk down i'th Water, the Hands on the Belly. Being, I ſay, in this poſture, you muſt lift up your Legs one after another, and draw them back with all the force you can towards your Hams, letting them fall into the water, for thus you will return to the place whence you came. This way is not only very pleaſant, but alſo when you find your ſelf weary ſometimes with Swimming, and far diſtant from the Shore, it may be uſeful to reſt your ſelf, and give you time to recruit your Spirits.

## X.

### *To turn ones ſelf lying along.*

IT ſeems at firſt ſight as if to turn ones ſelf, and turn ones ſelf lying along, were the ſame thing; but if you inſpect the matter more nearly, you'l find that in the Seventh Section you turn your Body very quick about; but to turn lying along, you muſt keep your ſelf in a poſture extended and lying on the Back, the top of your arms cloſe to your ſides, turning the loweſt Joint of your right hand outwards; the Legs at diſtance one from another at leaſt a foot, or thereabouts, the ſoals of your Feet turned towards the bottom of the Water. In this poſture you may turn, as you pleaſe, towards the right or left ſide. This may be ſerviceable in ſeveral rencounters; for it often happens that a perſon Swimming on his Back, may be forced againſt a Bank, or among Weeds;

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Weeds; wherefore a ready way of turning is very proper to avoid thoſe ſorts of dangers. But notwithſtanding theſe methods of Eſcapes, it is not ſafe to venture among ſuch ſorts of dangers, eſpecially Weeds; for ſome time or other one may be catched. There is another way of diſengaging ones ſelf from Weeds, which I will ſhew in the following Section.

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## XI.

### *To make a Circle.*

THE Circle (or entire Compaſs) is made, when one foot remaining immovable, the other turns round, and deſcribes a Circle, ending where it began: In the ſame manner the Head may remain immovable, while the Legs ſtrike the Water, and make the Body turn round. To perform this, the Body, lying on the Back, if you would begin to turn from the right to the left,

you muſt firſt ſink your left ſide ſomewhat more towards the bottom than the other, and lift out of the Water your Legs ſucceſſively, firſt the left, than the right, and at each of theſe motions advance your Legs onwards about a foot each towards the left ſide, your Head remaining ſtill in the ſame place; the froth on the ſurface of the Water will note the parts of the Circle you have deſcribed. This way may ſerve to remove any thing from ones Head (or feet) that may offend, which too often happens in the Water. In the practiſe of it you muſt take care not to elevate your Feet too high in the Air, for that would ſink down the Head in the Water; nor to ſtrike the Water too hard with your Feet, by reaſon it cauſes a diſagreeable noiſe.

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## XII.

### *To turn ones ſelf in the Water, being in an upright Poſture.*

BEing in the Water in a poſture upright, you may turn and view every thing ſucceſſively round about you. You may ſee that I am indeed upright, but to make you underſtand thoſe motions of my Feet which you cannot ſee; ſuppoſe I have a mind to turn to the right, in the firſt place I do, as it were embrace the Water with the ſoal of my right foot, and afterwards with that of my left, and in the mean while I incline my Body towards the left; I alſo draw as much as I can the Water towards me with my hands, and afterwards drive it off again; I draw it firſt with my left hand, and after with the right, and having ſo drawn it towards me, drive it off again. This manner of Swimming may be very uſeful; it is

very ſerviceable to know what happens on every ſide. Suppoſe you are in the Sea, you may this way find a place to land on, or where to attack any Enemy that might happen to follow you, or avoid his attacks; or if you have a mind to fight him in the Water, it ſhews how to do it to moſt advantage, and to turn your ſelf on all ſides. There are ſeveral other different manners of turning ones ſelf in the Water, and among them ſome that are very curious and pleaſant, but are only for thoſe to practiſe that are very expert in this art.

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## XIII.

### *To advance forwards in Swimming, with the hands joined together.*

THIS is one of the firſt and moſt ſimple ways of Swimming, and is alſo very graceful. In the practiſe of it you hold your Hands joined toge-

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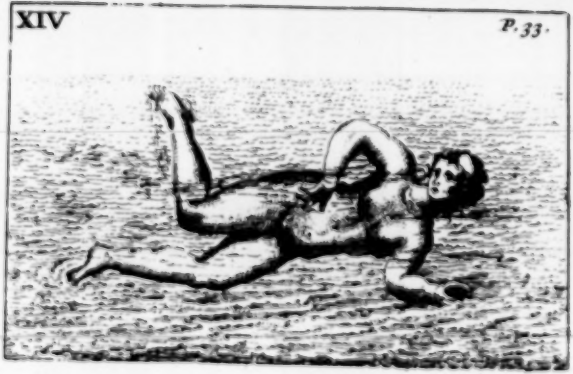

ther, drawing them in towards the Breaſt, and ſucceſſively ſtriking them out again. The two Hands remain all the while joined, inſomuch that the Thumbs and Fingers being turned towards the ſurface of the water, ſeem to be out of it. Beſides the gracefulneſs of this way of Swimming, it is moreover ſerviceable for traverſing, or Swimming croſs a heap of Weeds, &c. for the Hands being thus joined as it were in a point, open a paſſage for you through Weeds or Reeds, if they chance to oppoſe you, eſpecially if you take care not to ſtrike your hands out too far.

## *XIV.*

### *To Swim neither on Back nor Belly.*

SUppoſe you Swim on your Back, or Belly, lower, or ſink your left ſide, and at the ſame time elevate your right one. In Swimming, when you are thus laid, move your left hand as often as

you ſee convenient, without either ſeparating it far from your Body, or ſinking it, perpetually ſtriking it out, and retracting it, as in a right line on the ſurface of the water. Beſides the pleaſure of Swimming thus, you may alſo find an advantage by viewing as you pleaſe either ſide of a River, and that one ſide may reſt while the other is employ'd.

## *XV.*

### *To Swim on the Belly holding both your hands ſtill.*

THIS is eaſily performed in manner following. You muſt keep your Breaſt advancing forward, your Neck upright on the water, both your Hands faſt behind your Head, or on your Back, while in the mean time your Legs and Thighs puſh you forward by the ſame motions you make when you Swim (as at other times) on your Belly.

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ly. This way of Swimming may be useful, in case any accident, as the Cramp, &c. should happen to your Arms, or if you were forced on occasion to Swim with your Hands tyed behind you, or in case you were a Prisoner, and your Life or Liberty depended on it. The same thing may be performed by placing your self on the Back, but the other way is most advantageous, because you may see your way before you; and those that Swim on the Back are obliged to turn themselves often for that purpose. Besides the Hands are here at rest, but must be employ'd if you turn your self on your Back.

## *XVI.*

### *To carry the left Leg in the right hand.*

THIS is performed, when, in Swimming on the Belly, you lift up your Leg, and moving it towards the Buttocks you take hold of it with the

the hand of the oppoſite ſide, continuing in the mean while to Swim with the Leg and other hand which are at liberty. This method may be ſerviceable in caſes of the Cramp, or Gout, or if one Leg ſhould be intangled among Weeds; for by this manner you may eaſily break through 'em: but if you ſhould chance to find your ſelf engaged wholly among Weeds on every ſide, the following method will be moſt proper.

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## *XVII.*

### *To Swim like a Dog.*

YOU are not to imagine that this way is difficult, for it is ſo far from it, that ſeveral who never knew how to Swim before, in practiſing of it by chance, have kept themſelves above water. To Swim like a Dog, you muſt elevate or liſt up and depreſs one hand ſucceſſively after another, and do the ſame alſo with your Feet, only with this

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this difference, that with your hands you muſt draw the water towards you, and with your Feet drive it from you; you muſt begin with the right hand, and right foot, and afterwards with the left hand and foot, and ſo ſucceſſively. This way of Swimming is very uſeful for diſengaging ones ſelf from Weeds under water. But here follow other more eaſie methods to avoid the ſame danger by Swimming on the Back, whereof the firſt is very pleaſant.

*The* XVIII. *Chapter is the ſame with the* XV.

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## XIX.

### *To beat Water.*

YOU ſtrike the water with your right and left Legs; the manner of it is very pleaſant, when Swimming on the back, at each Extenſion of the Legs, lifting them up out of the water

one

one after the other, you ſtrike the water ſo that it rebounds up into the air. Thoſe who are moſt expert at this, bring their Chins towards their breaſt at each extenſion. There are ſome who not ſatisfied with going ſo far only, to perform the buſineſs more gracefully, lift up their Legs much higher than others, ſtrike the water, each Extenſion, ſometimes with the right Leg, ſometimes with the left, and at the ſame time turn the whole body. This is the moſt agreeable manner of all the reſt. To perform this, you muſt keep your body Extended on your back, expand or inflate your breaſt, and keep it almoſt out of water, the Palms of both your Hands extended and turned towards the bottom; for it is the office of the Hands to keep up the body while you ſtrike and open the Legs; but if at the ſame time you have a mind to beat water, and turn your ſelf, in that caſe ſuppoſing your right Leg is up out of the water, you muſt ſtrike the water with that, and at the ſame time lift up the left Leg, and by the ſame action

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on turn your whole body. This agility makes Swimming very eaſie, and does not require ſo much force as the following.

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## XX.

### *To keep one Foot at liberty.*

THeſe eaſie ways of Swimming, or rather refinements, ſeem more for diverſion than advantage; yet notwithſtanding there is not one of them but what may be ſerviceable in ſome of thoſe numerous rencounters which happen to Swimmers. As for Example, This may ſerve to diſengage ones Feet from Weeds, and that after a free fearleſs manner, which ſhews the Swimmer to be Maſter of his Art. He turns himſelf ſometimes to the right, ſometimes to the left, having always one Leg up out of the water, looking about him, bringing in his Chin always towards his

his Breaſt. It is more difficult than it ſeems to be at firſt ſight; for if the breaſt is not inflated, the Palms of the Hands extended, and turned downwards toward the bottom, and if the other Leg is not employ'd in the water; in ſhort, if you miſs of any one of theſe things, your head immediately ſinks down: Thus the addreſs, or management of it is difficult; but the recompence (when learn'd) ſatisfactory, and very uſeful, as I have ſhewn in diſengaging ones ſelf from Weeds. Here follows another method more eaſie.

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## XXI.

### *To ſhew both Feet out of the Water.*

ONE may Swim holding both Feet out of the water, and this is very eaſie: You may alſo not only remain ſo in one place, but alſo make advances forwards. You muſt place your ſelf on the

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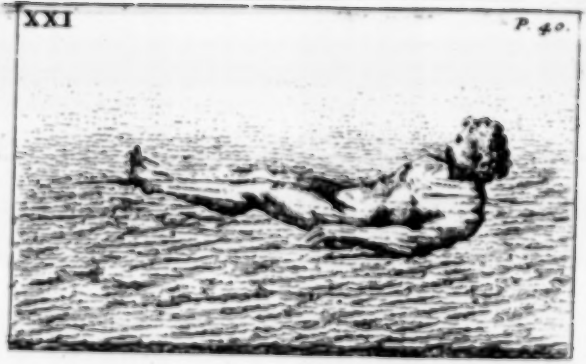

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the back, and bend the ſmall of it, contrariwiſe to what is practiſed in other ways of Swimming; your hands muſt be on your belly, the Palms of them open, moving them to and fro, like Oars, which muſt ſuſtain your body while your Feet are ſhewn. This way of Swimming will ſerve to ſhew you whether your Feet are clean or not, after having taken them from the bottom.

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## XXII.

### *Suſpenſion by the Chin.*

YOU cannot eaſily imagine how this manner of Swimming is performed, it is indeed very ſurprizing. By this means you may ſtand upright in the water though never ſo deep, without fear of ſinking. To make you comprehend it, you are to remember that when you Swim on your back, you lye ſtill, your Legs being extended: VVhen you find your ſelf in that poſture,

ſture, you muſt let your Legs go down or ſink; and when they come to be perpendicular to the bottom, you muſt take them up again, bending your knees, inflating your breaſt, and as to the Arms and Hands, whereof the back-parts lye flat on the water by the ſhoulders, you muſt ſometimes extend them on the one ſide, ſometimes on the other, ſometimes ſhut them, turning the Palms towards the bottom, the fingers cloſe to one another, holding your Chin as upright as poſſible. This way which ſeems ſo ſurprizing, is ſometimes very uſeful; ſuppoſe at any time, the Ice ſhould happen to break under your Feet, this way will be of vaſt advantage to ſecure your ſelf from the danger. It may alſo be very advantageous in caſe a man is obliged to ſave himſelf from ſome enemy purſuing, by leaping into the water in a dark night; for in that caſe, one may wait, without making any noiſe, till he is paſſed by, and then go again on ſhore.

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## XXIII.

### *To tread Water.*

BY this way you remain upright in the water without making any motion with your hands, only you move the water round with your Legs from you, the Soals of your Feet being perpendicular to the bottom; you may make uſe of this if you are caſt into the water bound hand and foot. Swimming on the belly is alſo ſerviceable in this rencounter. This way of Swimming is very advantageous, for it leaves us the free uſe of the hands. One may make uſe of it in defending ones ſelf; but it ought not to be practis'd where the bottom is full of Ruſhes or VVeeds, for they may entangle one of the Legs; and in ſuch caſe you may uſe the Method following.

## XXIV.

### *Changing Hand and Foot.*

WITH the right Hand you hold the left Foot, and contrariwise; but you must change those holds by a speedy letting or striking down the Foot held up. This may be useful for taking of VVeeds from the Legs, and freeing them, when they are both engaged amongst them.

## XXV.

### *To Swim having the Legs tyed together.*

THE Legs being bound either by VVeeds, or otherwise, you must turn on your Back, and laying your Hands across on your breast, for in that posture you may gain the shore by striking your Legs one against another, and

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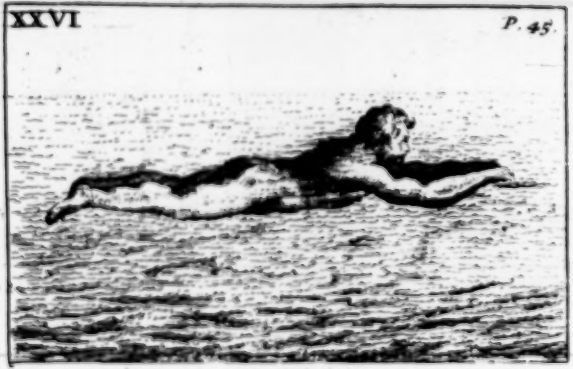

and holding them up as much as you can.

## XXVI.

### *To Creep.*

THE action of Swimming in Man, is very like the motion of Creeping in Reptiles; as suppose a Snake, for example, who resting or stopping first, with his fore parts, draws the rest of the body towards them; and it is a way very serviceable to get clear of Weeds. To practise it, being upon the Belly you cast your Hands forwards, and your Feet softly backwards, but close together, and thus you advance, extending your Arms and Hands as far from your Breast as possible, your Fingers close, and the Palms of your Hands a little bent, turned towards the bottom; for being in this posture, if you draw towards your Breast with your Hands and

and Arms, the water that is before you, by that you give time to the reſt of your body, to advance further, and to diſengage your ſelf from the Weeds, if you are intangled in them, which muſt not be done with too much haſte or force; for if you ſtrike out your Hands and Arms too vigorouſly, you will entangle your ſelf more among them, and when they have once caught you faſt, you are in danger of periſhing, if timely help don't come to relieve you.

## XXVII.

### *To Sit in the Water.*

EXpert Swimmers can do whatever they pleaſe in the water; they can walk there, ſtand ſtill upright, or lye ſtill, or ſit down. To Sit, you muſt take both your Legs in your Hands, draw in your Breath, and ſo keep your Breaſt inflated; your Head upright, and lifting up ſucceſſively your Arms and Legs, by

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by that motion ſuſtain your ſelf, as the Figure ſhews. This way may be ſerviceable to pluck off Weeds which may happen to entangle and hang about your Legs, as alſo to ſuſtain or keep ones ſelf above water in places where there is not room enough to Swim, or the Ground muddy, or otherwiſe diſobliging to the Feet, ſo that you care not to ſet them down.

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## XXVIII.

### *To cut the Nails of the Toes in the Water.*

IT is poſſible to perform actions in the Water, which one cannot do on Land; I my ſelf have often brought my Great Toe to my Lips in the Water, which I could never do on Land, nor on my Bed. You muſt hold your Knife in your right hand (if you are right-handed) and take up your left Leg, and lay the Foot on the right Knee; there

there you may take it from the left hand, and with the right cut your Nails without any danger. Thus you may also pick your Toes; and if this way has no other use or advantage, yet the dexterity of the management may serve to recommend it.

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## XXIX.

### *To shew out of the Water four Parts of the Body.*

THIS manner shews at once four Parts of the Body, *viz.* the Head, the two Elbows, and one Knee; you lift up one Knee, and place it upon the other by turning it, while in the mean time you lift up and depress the other successively, keeping in the interim your Elbows elevated, your Breast inflated and elevated as much as possible, and all lying on the Back. Besides the management of this method, and the difficulty of doing it well, it is serviceable

to

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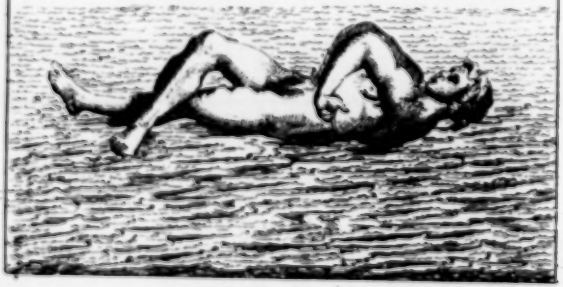

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to reſt your ſelf by putting one Thigh acroſs the other, and to take breath where the water is ſo deep that you cannot reach the bottom.

## XXX.

### *To Swim holding up one Leg.*

THIS way ſeems at firſt ſight to be the ſame with that of ſhewing the Feet out of the water, which we have already taught, but it is very different from it; for while you hold up one of your Legs, both your hands muſt embrace and gather together (as it were) the waters, ſtriking them under you, and driving them off; the other Leg muſt not be lifted up above half way, beating the water frequently therewith by quick and ſhort ſtrokes. This is an eaſie way to carry any thing from one ſide of a River to the other, by faſtning it to your great Toe; but

you may perform the ſame thing more eaſily as follows.

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## XXXI.

### *To Swim holding up the Hands.*

WHile you Swim on your Back, it is eaſie to put your hands to what uſe you pleaſe, but it is difficult to hold them upright, and Swim at the ſame time too. It would appear at firſt ſight as if this were the moſt eaſie of any method we have yet taught. You muſt take care leſt while you lift up your Arms, the Thorax or Breaſt be not contracted, for ſo you ſink. The whole Art of this way of Swimming conſiſts in heaving up the Breaſt as high, and keeping it inflated as much as poſſible, while your Arms are held up.

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## XXXII.

### *To Boot ones ſelf in the Water.*

I Call this way by the name of Booting or drawing on ones Boots, becauſe the action very much reſembles a Man doing ſo. You muſt firſt lift up one Leg out of the water, and afterwards the other, and take the foot in your hands as thoſe do who are drawing on their Boots, and preſently after let it go again, extending it out at length. The management of this way conſiſts in keeping up your Breaſt as high as you can, and as much inflated as poſſible, and alſo the one Leg up out of the water while the other is continually playing downwards. This way may be very commodious for cleaning your Feet from mud, *&c.*

## XXXIII.

### *The Leap of the Goat.*

IT is called ſo by reaſon you imitate the Leaping of Goats in the motions of the Feet. To perform it you muſt have both courage and ſtrength. You muſt keep your Breaſt inflated, and ſtrike with both your hands the water on each ſide, by thick ſhort ſtrokes three or four times, but more forcibly the laſt time than the others; while you are doing thus, you muſt lift up your Feet quite out of the water, and rub them one againſt the other, as you ſee commonly done in cutting of Capers. This is one of the moſt difficult but moſt ingenious pieces of Art belonging to Swimming, and when you are arrived to it, you may ſay you have maſter'd one of the moſt difficult points in the whole Art: For it is as difficult as to Swim under water, to which there is required a great

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great deal of artificial management; which now I come to ſhew, as far as I am acquainted with it. The firſt ſtep is to learn to Dive.

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## XXXIV.

### *To Dive.*

IF Men ſink to the bottom of the water, it is their own fault, nature has laid no neceſſity on 'em of doing ſo; nay there is not only occaſion for force and ſtrength to come thither, but alſo Art to do it ſafely, ſpeedily, and handſomely; but thoſe who are expert at Swimming do it, on occaſion, as ſwift as an Arrow, and deſcend perpendicularly or obliquely as they pleaſe. The firſt way of doing it is, to begin ſtanding on your feet touching the bottom; then afterwards riſe up, your head bowed down, ſo that your Chin muſt touch your Breaſt; the crown of your head being turned towards the bottom, holding the

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However it is ſeldom put in practice by reaſon of the dangers which attend it: But the following method is free from danger, and alſo otherwiſe very pleaſant.

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## XXXIV.

### *To Swim under Water.*

IN the firſt place you are to determine whether you are to Swim at bottom of the water, or near the ſurface, or in the middle between both. You firſt of all dive down; the two hands muſt be turned back to back, and cloſe to one another; after which you muſt extend them with all the ſwiftneſs you can, your Thumbs turned upwards, and your fore-finger towards the bottom; and if you have a mind to deſcend yet lower, you muſt as your hands are extended ſtill ſtrike them down lower in the water. If contrariwiſe you would reaſcend towards the ſurface of the

backs of your hands close together, right before your head, and sinking or striking them down first with all the swiftness and exactness you can; thus you may Dive to the bottom, and this is the first way I ordinarily teach.

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## XXXV.

### *The Perpendicular Descent.*

THIS is proper for those who leap off from any height into the water, as from a Bridge or Ship: This is performed by taking a leap a little forwards, and sometimes upwards, that your descent may be more perpendicular, or swifter to the bottom, and also that your head may go perpendicularly downwards. This way is very Commodious, when you have a very deep water, and it cannot be performed after any more ready method, because of the difficulty of long holding ones breath.

How-

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XXXVI.

However it is seldom put in practice by reason of the dangers which attend it: But the following method is free from danger, and also otherwise very pleasant.

## XXXIV.

### *To Swim under Water.*

IN the first place you are to determine whether you are to Swim at bottom of the water, or near the surface, or in the middle between both. You first of all dive down; the two hands must be turned back to back, and close to one another; after which you must extend them with all the swiftness you can, your Thumbs turned upwards, and your fore-finger towards the bottom; and if you have a mind to descend yet lower, you must as your hands are extended still strike them down lower in the water. If contrariwise you would reascend towards the surface of the

the water, you must keep the Palms of your hands open, and your Thumbs towards one another, as when you Swim on your Belly, the Palms of your hands being towards the bottom, and your two Thumbs, as I have just now said, towards one another.

He that would Swim in the middle, or between top and bottom, must grasp with both his Arms the water before him, attracting it towards him, keeping in the mean while his Thumbs turned more towards the bottom of the water, than the rest of his hands. You may have occasion to Swim thus, when you are to seek for any thing at bottom of the water, or to pass unseen from one shore to another; sometimes also to help one in danger of drowning. But in this last case you must take heed not to come too near neither under water, nor on the surface to any one in that danger; for if such an one takes hold of you, you are certainly lost.

To proceed therefore in that case safely, you must keep at distance, as ten or twelve foot off; your best way will be

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be not to lay hold on him till he is quite ſunk down, and loſt the uſe of his ſight; and if you have obſerved the place where he is, you may endeavour to take hold of him by the hair, and ſo draw him on your back, taking always care that he does not lay hold on you, or otherwiſe hamper you; you may thus draw him to ſome ſhallow place; or if you have any String or Rope about you leave one end on ſhore in hands of your Companions, and faſten the other to him, and ſo let them draw him out.

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## XXXVII.

### *To come to the top of the Water again, after having Dived.*

AFter you are at bottom, you may return with the ſame facility; which is performed much after the ſame way as we have taught before, to turn ones

ones ſelf in the water, the perſon who Swims with one of his hands extended, muſt puſh from him the water before him with his Palm, and with the cavity of the other Palm drawing the water that is behind him, towards him; when your hand is extended as far as it can be, the fingers of the hand ſo extended, and the Palm of that turned outwards, ought to ſhut or clench; the perfection of this way you'l ſee as follows.

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## XXXVIII.

### *In Swimming under water to make a Circle.*

WHEN Swimmers go to ſearch for any thing in the water, they Swim round about the place where the thing was caſt in, if they do not find it immediately; by this ſort of addreſs they can take up any the leaſt thing that is at the bottom. The manner of making

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making this Compaſs or Circle is thus: If you would begin the Circle from the right hand, and end it at the left, you muſt graſp or embrace the water with both your hands from the right to the left, and exactly contrary if you would turn the other way; but when you have Dived perpendicularly down, and can't find what you went to ſeek, you will be obliged to take ſuch a compaſs, but don't go ſo far as to loſe the light; for when once that begins to fail you, it is a ſign you are either too deep, or under a Boat, or Shore, or ſomething elſe that intercepts the light. You muſt always take heed of venturing into ſuch places; and if you ſhould find your ſelf ſo engaged, call to mind whereabouts, or which way you came thither, and turn back the ſame way, looking upwards for the light: for you may ſee it a great way off: above all, take heed you don't go to breathe under water: In caſe you are afraid of any Enemy that ſhould lay wait for you when you come up again, you muſt have recourſe to the Agility of the Dolphin.

XXXIX.

## XXXIX.

### *The Agility of the Dolphin.*

THIS way teaches to descend and come up again in the water to take breath, and after having respired, to dive down again. You may Swim fifty paces under water in the Summer, without taking breath, which has saved many Peoples lives. After two or three strokes you must dive, the deeper the better and more safe, so you have the light; you may advance forward, or keep your self under water in the same place as long as you can hold your breath: When you can hold it no longer, you come up to breathe, and then dive again, as often as the necessity of respiration requires. There are several sorts of dangers which may oblige us to take this Method.

*FINIS.*

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